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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/031,231	01/17/2002	Terence Widdowson	36-1535	8193
23117	7590	06/27/2006	EXAMINER	
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				GHULAMALI, QUTBUDDIN
ART UNIT		PAPER NUMBER		
				2611

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/031,231	WIDDOWSON ET AL.
	Examiner Qutub Ghulamali	Art Unit 2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 09 June 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,2,4-11 and 13 is/are rejected.
- 7) Claim(s) 3, 12 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

1. This Office Action is responsive to applicant's Remarks/Amendments filed on 06/09/2006.

Response to Submission After Final

2. Applicant's amendment filed June 09, 2006 (see pages 2-6) in response to the rejection of claims 1, 2, 4-11 and 13, has been fully considered. However, they do not advance the case to issue. However, the Finality of Office Action dated December 14, 2005, is hereby withdrawn in view of new ground of rejection. Applicant's first submission after final filed on 06/09/2006 has been entered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 4-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moore, III (USP 6,148,021) in view of Kumar (USP 6,005,894).

Regarding claim 1, Moore discloses generating a single sideband spread spectrum signal (col. 2, lines 12-28; col. 4, lines 28-30) comprising:

- i) generating a complex spreading signal (col. 3, lines 30-37; col. 4, lines 8-15; col. 7, lines 15-19);
- ii) phase-shifting a complex spreading signal to produce a phase-shifted complex spreading signal (col. 4, lines 28-45);
- iii) up converting the complex spreading signal and the phase-shifted complex spreading signal to a higher frequency (frequency translating) to produce the single sideband spread spectrum signal (col. 3, lines 30-49; col. 5, lines 55-64; col. 7, lines 34-37);
- iv) band limiting (frequency translating) one of at least the complex spreading signal or the single sideband spread spectrum signal (col. 3, lines 58-67); and
- v) modulating one of the complex spreading signal or the single sideband spread spectrum signal with the input signal (col. 4, lines 28-35, 41-45),
wherein the phase shifting step is performed before the upconversion step.

Even though Moore discloses phase shifting a complex signal to produce a phase shifted complex spreading signal, Moore however does not explicitly disclose the phase shifting in accordance with a Hilbert transform. Kumar in a similar field of endeavor discloses use of Hilbert transform in frequency shifting signal (the function of Hilbert transform in a circuit is to cause a phase-shift of about 90 degree for substantially all frequencies in digitized and analog signal is well known in the art) (col.28, lines 53-59; col. 29, lines 14-25). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Hilbert transform for creating a shift in frequency as taught by Kumar in the circuit of Moore because it can allow latency or

shift in signals to be adequately maintained for a substantially quadrature phase relationship.

Regarding claim 2, Moore discloses modulating a signal of the up converted complex signal in accordance with the real part of the complex signal combined with the Imaginary part of the phase shifted complex signal (I and Q) (col. 4, lines 28-35); and modulating a quadrature signal of the up converted complex signal in accordance with the imaginary pan of the complex signal combined with the real part of the phase shifted complex signal (col. 4, lines 28-45).

Regarding claim 4, Moore discloses bandlimiting is performed prior to the phase shifting (col. 3, lines 60-67).

Regarding claim 5, Kumar discloses bandlimiting is performed after the up conversion (col. 3, lines 58-67; col. 4, lines 20-27).

Regarding claim 6, Kumar discloses modulation is performed after the up conversion (col. 4, lines 39-45).

As to claim 7, claim 7 is an apparatus claim corresponding to method claim 1 and recites substantially very similar limitations and therefore is similarly analyzed as method claim 1 above.

With reference to claim 8, Moore discloses the band-limiting filter is a low pass filter (col. 4, lines 20-27) connected to receive the output of the complex spreading signal generator (col. 7, lines 40-60).

Regarding claim 9, Kumar discloses the band-limiting filter is a band-pass filter (fig. 11, elements 95) connected to receive the output of the complex modulator (col. 21, lines 25-29, 46-50).

Regarding claim 10, Moore discloses the data modulator is coupled to receive a second signal via the complex modulator (col. 4, lines 1-21).

As per claim 11, Moore discloses a method of decoding single sideband signal comprising:

upconverting the complex spreading signal to a higher frequency (col. 3, lines 30-49; col. 5, lines 55-64; col. 7, lines 34-37); and
demodulating a received signal in accordance with the upconverted complex spreading signal (col. 5, lines 55-64).

Regarding claim 13, Moore discloses an apparatus for decoding a transmitted spread spectrum signal comprises:

a complex spreading signal generator (col. 3, lines 30-37; col. 4, lines 8-15; col. 7, lines 15-19);
a phase-shifter connected to receive the complex spreading signal from the complex spreading signal generator (col. 4, lines 6-15);
a complex modulator connected to receive the phase-shifted complex spreading signal from the phase shifter and arranged in operation to upconvert the complex spreading signal (col. 4, lines 28-35); and

a data demodulator connected to receive the transmitted signal and the upconverted complex spreading signal and arranged in operation to demodulate the transmitted signal to provide a decoded transmitted signal (col. 5, lines 40-64).

Allowable Subject Matter

5. Claims 3 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patents:

US Patent (6,490,267) to Kim et al.

US Patent (6,377,539) to Kang et al.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutub Ghulamali whose telephone number is (571) 272-3014. The examiner can normally be reached on Monday-Friday, 7:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone

number for the organization where this application or proceeding is assigned is
(571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

QG.
Examiner AU-2611.
June 22, 2006.

Jean B. Corrielus
JEAN B. CORRIELUS
PRIMARY EXAMINER
6-22-06